

MATERIAL SAFETY  
DATA SHEET

ATOTECH USA INC.  
P. O. BOX 6768  
SOMERSET, NJ 08875-6768

EMERGENCY TELEPHONE  
NUMBER  
8:30 A.M. - 5:00 P.M.  
(908) 302-3550

CHEMTREC - 24 HOURS  
1-800-424-9300

NAME USED ON LABEL: M&T(R) Chromic Acid  
CHEMICAL NAME (if single substance): Chromium trioxide  
CHEMICAL FAMILY: Chromium Compound  
FORMULA: CrO<sub>3</sub>

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INGREDIENTS  
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Identity	CAS No.	%	TWA	CEILING
Chromium Trioxide	1333-82-0	>99	OSHA N/E	0.1 mg/m <sup>3</sup> (As CrO <sub>3</sub> )
			ACGIH 0.05 mg/m <sup>3</sup> (As Cr)	N/E

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PHYSICAL DATA  
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Boiling Point: N/A	Freezing Point: 195-200 deg C
Specific Gravity: 2.7	Vapor Pressure @ 20 C: N/A
Vapor Density: N/A	Solubility in Water: complete
% Volatiles: N/A	Evaporation Rate: N/A
Molecular Weight: 100.01	Other:
Appearance and Odor: Dark red flakes or powder; no odor.	

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FIRE AND EXPLOSION DATA  
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Flash Point (Test Method) N/APP	Autoignition Temperature N/APP	Flammable Lts. LEL= UEL=
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Extinguishing Media: Use extinguishing media appropriate to surrounding fire conditions. Noncombustible.

Special Fire Fighting Procedures: Do not get material on skin or clothing. Avoid inhalation of dust and fumes. Stay upwind, out of low areas and ventilate closed space before entering. Cool containers from the side with water until fire is out. Use water spray to reduce vapor; do not put water directly on leak or spill area. Keep combustibles away from spilled material. Self-contained breathing apparatus (SCBA) and chemical protective clothing can be worn but may not provide adequate thermal protection unless stated by

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the manufacturer. Structural firefighter's protective clothing may not be effective. Move containers from fire area, if possible without risk.

Unusual Fire and Explosion Hazards: When heated to decomposition, toxic fumes are emitted and oxygen is released. Mixtures with combustible materials may ignite spontaneously or even explode.

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ENVIRONMENTAL INFORMATION  
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Spill Response: Wear respirator and protective clothing when cleaning spill. Do not get spilled material on skin or clothing; stop leak if you can do so without risk. Remove ignition sources from area where flammable vapors may exist. Carefully sweep up spilled material, using non-sparking tools, and place in a suitable container for disposal. Avoid creating a dusty atmosphere. Ventilate area and CAREFULLY flush area where spill has occurred with water. Chromic acid will be formed with the addition of water. Retain this water-residue mixture for evaluation and/or disposal. May be hazardous to aquatic life if released to open waters.

Recommended Disposal: Disposal of waste material from the use of this product may be subject to federal, state, and local regulations. Refer to Part 261 of 40 CFR for the applicability of federal regulations. Consult with your state and local governments for additional regulatory requirements. Disposal of this material must be in a manner compliant with all federal, state, and local regulations. This product (as supplied) contains chromium and is neither aqueous nor a liquid; it is an oxidizer as defined in 49 CFR 173.151.

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HEALTH HAZARD DATA  
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Route(s) of Exposure: Skin and eye contact, inhalation, ingestion.

Eye Contact: Can irritate, severely burn and ulcerate the eyes and surrounding areas.

Skin Contact: Can irritate and burn the skin. Can be absorbed through the skin to cause systemic poisoning.

Inhalation: May irritate, burn and possibly ulcerate the respiratory passages, including the nose and lungs. Inhalation may be fatal.

Ingestion: May irritate, burn, and ulcerate the mouth, throat, and stomach. Ingestion can cause systemic poisoning.

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Chronic Toxicity: Long term exposure to chromium trioxide may cause kidney, liver, and lung damage; perforation of the nasal septum may also occur. Chromium and certain chromium compounds have been determined to present a carcinogenic risk to humans (IARC, NTP). ACGIH only considers water insoluble hexavalent chromium compounds as having carcinogenic potential in humans. The state of California has determined that hexavalent chromium compounds cause cancer.

Symptoms of Exposure (not route specific): Red, inflamed skin, eyes, and mucous membranes; intense tearing and salivation, blurred vision, conjunctivitis, potentially irreversible eye damage; deep, penetrating, and painful ulcers; severe abdominal cramping, nausea, vomiting, diarrhea; difficulty breathing, swallowing, speaking; tightness and pain in the chest, shortness of breath, spasmodic coughing; pulmonary edema.

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SUGGESTED FIRST AID  
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Eye Contact: IMMEDIATELY flush eyes with flowing water for at least 15 minutes. Seek medical attention.

Skin Contact: Wash exposed areas THOROUGHLY with soap and flowing water. Seek medical attention.

Inhalation: Remove exposed individual from source of exposure and seek medical attention! If breathing is difficult, oxygen may be administered by certified individuals only. Artificial respiration may be performed only if exposed individual is not breathing.

Ingestion: Never give fluids or induce vomiting if exposed person is unconscious or having convulsions. DO NOT INDUCE VOMITING. One to two glasses of water or milk may be given to exposed person only if conscious and not having convulsions. Seek medical attention.

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REACTIVITY DATA  
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Stability: Stable

Hazardous Polymerization: Will not occur

Conditions To Avoid: Elevated temperature, sources of water or moisture.

Incompatibility (Materials to Avoid): Organic materials, acetic acid, alcohols.

Hazardous Decomposition Products: Chromium fumes, chromic oxide, oxygen.

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SPECIAL PROTECTION INFORMATION  
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Ventilation: Local Exhaust is highly recommended.  
Mechanical (general) is required.

Respiratory Protection: Use an OSHA/MSHA approved air-supplied or high-efficiency chemical cartridge respirator.

Eye and Face Protection: Chemical workers goggles. A face shield should also be worn when handling solutions of this product. DO NOT wear contact lenses.

Other Clothing and Equipment: PVC or rubber gloves and protective clothing. An eyewash and emergency shower should be readily available. Launder contaminated clothing before reuse. Use fresh clothing daily.

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SPECIAL PRECAUTIONS  
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Precautionary Label Information: DANGER! POSSIBLE CANCER HAZARD - MAY CAUSE BURNS OR ULCERATION-STRONG OXIDANT POISON. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. Long term exposure can cause liver and kidney damage. Skin contact with hexavalent chromium compounds may cause allergic dermatitis. Keep container closed. Do not get in eyes, on skin, on clothing. Do not breathe dust or mist from solutions.

Storage and Handling: Keep container tightly closed, in upright position. Hygroscopic. Will absorb water from air. Store in a cool, dry place suitable for oxidizers, poisons. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Wash thoroughly after handling. Do not put anything else in this container. Empty container may contain hazardous residue. Handle empty container as if full.

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TRANSPORTATION  
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REGULATED TRANSPORTATION IS INDICATED BY (x) BELOW:

- (X) Department of Transportation (DOT/HM-181) 1991
- (X) International Air Transportation Association (IATA) 32 Ed.
- (X) International Maritime Organization (IMO/IMDG) Amdt. 25-89

( ) NOT REGULATED (if RQ is not applicable)

DOT/EPA - REPORTABLE QUANTITY (DEPENDENT UPON QUANTITY PER CONTAINER:  
None

SHIPPING INFORMATION:

UN(NA) Number	Hazard Class	Subsid. Risk	Label(s)	Mark (IMO)	Packaging Group
UN1463	5.1	8	OXIDIZER CORROSIVE	None	II

Shipping Name:

DOT - Chromium trioxide, anhydrous  
IATA - Same  
IMO - Same

DOT QUANTITY LIMITS:

Passenger Air or Rail- 5 kg                      Cargo Aircraft Only- 25 kg

Notes: 49CFR173.212, 173.240

IATA PACKAGING:

Passenger Aircraft (PA)	Cargo Aircraft Only(CAO)
PkgInst- 508 Max/Pkg- 5 kg	PkgInst- 511 Max/Pkg 25 kg

Notes: (PA) Single packagings are not permitted.

(CAO) Combination and single packagings are permitted.

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MISCELLANEOUS  
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CAREFULLY READ THE FOLLOWING: The identification of ingredients in this MSDS meet or exceed the requirements set forth in 29 CFR 1910.1200 for hazard communication. Constituents present in a solution or mixture but not identified as ingredients or "trade secrets" in this MSDS, have not been determined to be hazardous according to the guidelines of 1910.1200(d) and Appendices A and B to 1910.1200. Items identified as a "trade secret" in this MSDS, if applicable, meet the requirements of 1910.1200(i) and Appendix D to the same. Additional federal regulatory requirements, such as SARA Title III and DOT, although not mandated to appear in this MSDS, may be found in other sections.

ATOTECH USA INC. certifies that all ingredients, whether identified in this MSDS or not, are on the TSCA inventory (for USA manufacture and/or sales only).

The information set forth herein has been gathered from standard reference materials and/or ATOTECH USA INC. data and is to the best knowledge and belief of ATOTECH USA INC. accurate and reliable. Such information is offered solely for your consideration, investigation and verification, and it is not suggested or guaranteed that the hazard precautions or procedures mentioned are the only ones which exist. ATOTECH USA INC. makes no warranties, express or implied, with respect to the use of such information or the use of the specific material identified herein in combination with any other material or process, and assumes no responsibility therefore.

Prepared by the Product Safety Department (PSD)

Issued: 06/16/92

Supersedes: 12/01/91

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ADDITIONAL INFORMATION  
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Ratings:

HMIS	F	H	R	PPE	Spec Haz
NFPA	0	3	1	J	N/APP
	0	3	1	N/APP	0

F= Flammability

H=Health

R=Reactivity

PPE= Personal Protection Equipment

Spec Haz= Special Health Hazards

W=Water Reactive

O=Oxidizer

SARA Title III Classifications:

	Yes	No
Immediate (Acute) Health . .	X	
Delayed (Chronic) Health . .	X	
Sudden Release of Pressure .		X
Reactive . . . . .		X
Fire . . . . .		X

Components of this product are identified below if they are present in excess of de minimus reporting levels. Components which are not required to be identified by specific chemical name may have a generic description.

SARA Title III Section 302 Extremely Hazardous Substance(s):  
None

SARA Title III Section 313 Toxic Chemicals:  
Chromium Compounds (>99%)

STATE RIGHT-TO-KNOW

Components of this product which are specifically identified in the ingredients section of this MSDS may be listed as hazardous by these and/or other states: California, Massachusetts, New Jersey, Pennsylvania.